

CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

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25X1

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This is UNEVALUATED Information

THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
 THE APPRAISAL OF CONTENT IS TENTATIVE.
 (FOR KEY SEE REVERSE)

Emphasis at present is on research on crystals for infrared spectroscopy.
 The following crystals are produced (drawn from the melt) for this purpose:

<u>Type</u>	<u>Transmission up to:</u>	25X1
Sodium Chloride	15 μ	
Barium Chloride	10 μ	
Potassium Bromide	25 μ	
Lithium Fluoride	25 μ	
Cesium Bromide	39 μ	
Cesium Iodide	50 μ	
Calcium Fluoride	9 μ	

With all crystals except calcium fluoride the size obtained was sufficient to make prisms as large as 15-20 centimeters. Up until now, synthetic calcium crystals have been used only as cuvette windows and achromatic special lenses.

The Russians require the following composition for transmission of wavelengths from 1 to 50 μ

Calcium Fluoride
 Sodium Chloride
 Cesium Bromide
 Cesium Iodide

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STATE	X	ARMY	X	NAVY	X	AIR	X	FBI		AEC		OST	X	ORR	X	X
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(NOTE: Washington distribution indicated by "X"; Field distribution by "#")

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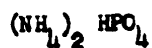
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Under development at present are some self-recording infrared spectrometers of from 1 to 25 μ and from 1 to 39 μ (calcium fluoride, sodium chloride, and cesium bromide) and an instrument similar to the Perkin-Elmer Universal of from 0.1 (ultraviolet) to 50 μ .

Six 15-centimeter prisms of calcium fluoride, sodium chloride, cesium bromide and cesium iodide must be delivered to the USSR by the end of this year.

Crystals for the Piezoelectric Effect:

The following crystals are being produced at present:



Ethylene diamine tartrate

Rochelle Salt

Synthetic Quartz

About 3 to 3½ kilograms of synthetic quartz crystals are grown every month. The size of the individual crystals ranges from 120 to 140 grams. They are used for oscillator plates, quartz-spectrograph prisms, and monochromatic illuminators.

The production of synthetic quartz crystals is to be increased to about 6 kilograms per month. An attempt will also be made to produce larger crystals (about 300 grams). It takes about 3 months for such a crystal to be grown. The largest grown up until now has been about 200 grams, which took 2½ months.

So far, in 1954 the following have been delivered to the USSR:

30 $(\text{NH}_4)_2 \text{HPO}_4$ crystals

25 Ethylene diamine tartrate crystals

25 Rochelle-salt crystals

7.5 kilograms of synthetic quartz

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